

**Frugal Innovation and Social Innovation:
Linked Paths to Achieving Inclusion Sustainably**

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Abstract

We present a theoretical model that links social and frugal innovation using inclusion as a common denominator. We discuss why the two concepts are important together; where we find examples of such innovations; what the similarities and differences between the two are; and why a combined approach can solve the Grand Challenges of our time and improve social and economic inclusion sustainably around the world. We overview opportunities for future research based on our model and discuss implications for research and practice.

1. Introduction to literature

Social innovation has as its focus the provision of new solutions to address social problems and enhance social inclusion. As such, research on social innovation has the potential to address local problems as well as more systemic and structural issues, namely the ‘Grand Challenges’ of our time. A question remains, however, about how, in practical terms, social innovation can meet the needs of large numbers of people without creating negative externalities such as environmental collapse or financial overreach. In the face of rising costs, resource constraints and growing demand, we argue that frugal innovation offers a practical way of tackling the Grand Challenges that social innovation sets out to solve. Specifically, we argue that the ability of social innovation to achieve greater inclusion can be enhanced if considered in conjunction with evolving models of innovation such as frugal innovation.

To do so, we begin by examining in greater detail these two types of innovation—frugal and social innovation—alongside a third type of pro-social innovation that is related to and links both, namely inclusive innovation (see Table 1 for details).

<INSERT TABLE 1 ABOUT HERE>

Table 1: Definitions of Inclusive, Social and Frugal Innovation

Inclusive innovation	
"Inclusive innovation is the means by which new goods and services are developed for and/or by the billions living on lowest incomes."	Foster and Heeks 2013, p.333
"the development and implementation of new ideas which aspire to create opportunities that enhance social and economic wellbeing for disenfranchised members of society"	George, McGahan and Prabhu 2012, p.663
"Innovations are inclusive if they benefit the poor in terms of additional income and employment"	Altenburg 2011, p.50
"by promoting more formal R&D efforts for poor people and more creative grassroots efforts by them, and by improving the ability of informal enterprises to exploit existing knowledge."	Dutz 2007, p.xviii
"inclusion of fundamental social responsibilities in both strategy and operations management in organizations"	Nijhof, Fisscher and Looise, 2002, p.84
Social Innovation	
"The term 'social innovation' is used to describe a broad range of organizational and inter-organizational activity that is ostensibly designed to address the most deep-rooted 'problems' of society, such as poverty, inequality and environmental degradation."	Tracey and Scott 2016, p.51
"the transformation of social systems in ways that both address social problems in a practical sense and shift our ways of thinking about these problems."	Lawrence, Phillips and Tracey 2012, p.321
"systems and processes of change in social relations' at one extreme and 'innovation in the conceptualisation, design and production of goods and services that address social and environmental needs and market failures."	Nicholls and Murdock 2012, p.2
"A novel solution to a social problem that is more effective, efficient, sustainable, or just than existing solutions and for which the value created accrues primarily to society as a whole rather than private individuals."	Phills, Deiglmeier and Miller 2008, p.34
"Social innovation refers to new ideas that work in meeting social goals."	Mulgan et al. 2007, p.8
Frugal Innovation	
"Frugal innovation—the creation of faster, better and cheaper solutions for more people that employ minimal resources"	Prabhu, 2017, p.1
"Frugal innovation is the ability to 'do more with less'"	Radjou and Prabhu 2015, p.xvii
"means and ends to do more with less for many"	Bhatti 2014, p.296
"a design innovation process that properly considers the needs and context of citizens in the developing world is necessary in order to develop appropriate, adaptable, affordable, and accessible solutions, products and services."	Basu, Banerjee and Sweeny 2013, p.63
"innovative, low-cost and high-quality products and business models originating in developing countries and exportable to other developing countries or even the developed world."	George, McGahan and Prabhu 2012, p.663
"'good-enough,' affordable products that meet the needs of resource-constrained consumers."	Zseshky, Widenmayer, and Gassmann 2011, p.38

Inclusive innovation is defined as "the development and implementation of new ideas which aspire to create opportunities that enhance social and economic wellbeing for disenfranchised members of society" (George, McGahan and Prabhu 2012, p. 663). According to Nijhof, Fisscher and Looise (2002), inclusive innovation refers to the "inclusion of fundamental social responsibilities in both strategy and operations management in organizations" (p.84). Nijhof et al.'s project on inclusive innovation seeks to develop a label for the integration of social responsibility and universal human rights within organizations. More recently though, the term has been used to denote inclusive innovation systems that take into account context-specific issues, obstacles and needs in developing countries such as underserved low-income markets and informal institutions (Altenburg 2011). The emphasis here is to better address the needs of the poor by lowering the cost of goods and services, or creating income earning opportunities for the poor, and improving knowledge creation and absorption effects most relevant for the poor (Dutz 2007). George et al. (2012, p. 662) warn that "The field is in a state of infancy – particularly with regard to theory that deals satisfactorily with inequality and with the implications of inequality for innovation." Overall, however, inclusive innovation is about fostering growth and equality for underserved or disenfranchised people – though the means by which this is done or achieved remains unclear (George et al. 2012).

Social innovation is defined as "the transformation of social systems in ways that both address social problems in a practical sense and shift our ways of thinking about these problems" (Lawrence, Phillips and Tracey 2012, p. 321). Nicholls and Murdock (2012, p.2), in a review of the literature, state that social innovation research can be understood as focusing on "systems and processes of change in social relations" at one extreme and "innovation in the conceptualisation, design and production of goods and services that address social and environmental needs and market failures" at the other. In leaning towards

the latter, Gundry et al. (2011) posit that if social entrepreneurs are primarily concerned with the development of innovative solutions to society's problems, then the act of doing so would be social innovation. Thus, social entrepreneurs provide innovative leadership in social enterprises (Dees 1998) and the role of innovation in a social entrepreneurial organization is key (Borins 2000). Such social entrepreneur traditions emphasized the social innovation, entrepreneurial activist, and frame-breaking approaches to non-profit management (Dart 2004). The stream of the social innovation literature that this work builds upon describes social innovation as the work of social entrepreneurs, emphasising the role of individuals in developing innovative solutions for difficult social challenges (Bornstein 2004; Bornstein and Davis 2010; Dees and Anderson 2006; Goldsmith 2010; Hartigan and Elkington 2008; Hoogendoorn, Pennings and Thurik 2010). Consequently, social innovation is a practice-led field which is contextually based; most work has been on successful case studies rather than on understanding patterns and stages of social innovation (Foundation 2012). Further, much of the literature on social innovation has focused on the process perspective of social innovation, touching upon more practical concerns on how to develop and implement programmes and strategies. Consequently, there remain many opportunities to contribute to conceptual models of social innovation. For instance, Cajaiba-Santana (2014) has brought together the polarized view of social innovation between agentic and structuralist approaches to propose a new conceptual framework to investigate social innovation as a driver of social change.

Frugal innovation is commonly associated with increased affordability and low-cost solutions (Woolridge 2010; Radjou and Prabhu 2015). George et al. (2012, p. 1) define frugal innovation as "innovative, low-cost and high-quality products and business models originating in developing countries and exportable to other developing countries or even the

developed world". Others call such innovations ‘toned down’ and ‘good enough products’ (c.f. Hang et al. 2010; Zseshky et al. 2011), or low-cost products (Ramamurti 2012). Frugal innovation is also often conflated with terms such as value-based design (DePasse et al. 2016), reverse innovation (Govindarajan and Trimble 2013) and *jugaad* innovation (Radjou, Prabhu and Ahuja 2012) due to similarities between their meanings and the contexts in which they are applied or studied. In contrast to the perception that frugal innovation may engender inferior quality, Bhatti (2014) finds that frugal innovations commonly exhibit superior quality and performance compared to alternatives. Many frugal innovations stem from emerging markets (Radjou and Prabhu 2015) and from challenging contexts marked by resource constraints and institutional voids (Bhatti 2014; Prabhu et al. 2017). Typical examples of frugal innovation include those where inputs and outputs are less costly but also where things are done more efficiently or where innovations provide wider access to larger populations through their scalability (Bhatti and Ventresca 2013). Prahalad (2006) in his scholarly work and Basu in her practical work at the Frugal Innovation Lab (Basu et al. 2013; Bhatti et al. 2018) focus on the bottom of the pyramid – the largest and poorest socio-economic segment of the population. Prahalad’s description of innovation as frugal calls for a shift away from innovation based on affluence and abundance. Innovators in seeking to serve these underserved market segments or challenging contexts embrace constraints and develop a mind-set and skill set that is more suited for frugal innovation (Radjou et al. 2012).

2. Issues, themes, questions

Scholars have argued that despite the gains reaped from the globalization of trade, the most important systemic problem which the global economy faces is its social inequality (Sen, 2001; Suter, 2010). Individually and collectively we have been unable to cope with this challenge because of market failure in the private sector, silos in the public sector, and

fragmentation and the lack of scalability in the civil sector (Foundation 2012). Consequently, a renewed focus in innovation on affordability is supported by civil society, governments, multinationals, and entrepreneurs worldwide (Radjou and Prabhu 2015; Koh and Prabhu 2015; Bhatti and Ventresca 2012). With growing concern about inequality, myriad actors are innovating in new ways to provide for more marginalized and underserved market segments globally. In the process of doing so, they have also challenged long-held assumptions and practices of innovation. Social innovation deals with social problems often precipitated as a result of market failure (Mulgan 2006). And the emerging trend of frugal innovation suggests that poverty does not have to mean deprivation or reliance on handouts (Hart and Prahalad 2002); the lack of resources and institutional voids, rather than presenting obstacles, offer opportunities for the development of new products, services and business models (Prabhu et al. 2017; Bhatti 2012). What began as grassroots efforts to solve local problems, social and frugal innovation have both evolved to increasingly address Grand Challenges – more substantive, systemic and structural issues around economic and environmental sustainability as well as social inclusion worldwide.

The rising popularity of social innovation is associated with growing social, environmental and demographic challenges (Foundation 2012, Prabhu 2017). These challenges are exacerbated due to the ambitions of the modern welfare state, the limitations of conventional market capitalism, deepening climate change, ever-increasing and ageing populations, and the impact of globalisation and mass urbanisation (Foundation 2012). With so many issues, themes and concerns facing social equality and well-being, it is not difficult to delineate social innovation as almost any type of innovation that transforms societal practices (Kesselring 2009). Anything from a sect (Cornwell 2007), the eBook (Cavalli 2007), or even scientific management (Mumford and Moertl 2003) could be classified as social innovation.

Roth (2009) contends that even economic innovations are one type of social innovation since most are the outcome of societal efforts (Barré 2001; Nowotny et al. 2001) or the result of the co-evolution of both economic and non-economic systems of society (Etzkowitz and Leydesdorff 2000; Leydesdorff 2005).

Our previous work (e.g. Bhatti 2014; Prabhu 2017; Prabhu et al. 2017; Bhatti et al. 2018) suggests that frugal innovation deals with, makes use of, or overcomes resource constraints and institutional voids to create social value as well as profit generation, the former to improve lives, and the latter to make solutions sustainable. Frugal innovation has been studied in terms of new product development strategies (Zeschky et al. 2011), international business (Radjou and Prabhu 2015), social entrepreneurship (Bhatti 2014), engineering and design (Sharma and Iyer 2014), and sustainability (Levänen et al. 2015). With so many facets to frugal innovation, it is also seen as a hybrid of different existing types of innovation, but mainly technological innovation, social innovation and institutional innovation (Bhatti 2012). Examples of frugal innovations are diverse, ranging from advanced technology and manufacturing such as 3D printing or additive manufacturing, the Tata Nano Car, a startup Miroculous which seeks to diagnose diseases using RNA sequencing, to less technology intensive social enterprises involving microfinance and affordable housing projects that strive for greater social inclusion.

The growing sophistication of managers who have arisen from backgrounds of poverty has played a key role in heightening awareness of the many disconnects of globalization (Stiglitz 2007; 2015). Perhaps as a result, many companies are beginning to aspire to a ‘shared value’ philosophy (Porter and Kramer, 2011), by which they can create economic and social value by addressing the unmet needs of under-served populations (Prahalad 2010). Cappelli et al.

(2010) contend that this new managerial philosophy is deeply rooted in a culture of scarcity, shared value, employee engagement and investment in people. They (2010b, p. 22) label Indian companies as a "compelling example of a model that succeeds financially while succeeding socially". Similarly, Prahalad and Mashelkar, 2010 (p. 2) argue that "learning to do more with less for more people, we believe, should be the innovator's dream." A member of the team that developed the GE MAC 400, a highly touted frugal medical device, says frugal innovation "requires a shift in mind-set from value for money to value for many" (Govindarajan and Trimble 2012, p. 150).

With so many different yet related notions of what innovation is (see Chandy and Prabhu 2011 for a review and typology), we rely on two criteria to help us identify innovations, whether process or outcome based (Phills et al. 2008). First, the phenomenon must be novel. It may not be completely original, but it must be new to the user, use, application, or context. The novelty associated with the innovation does not have to be universal, but can be new to the unit of adoption such as specific user, firm or market (Rogers 2003; Chandy and Prabhu 2011). Van de Ven (1986) too views innovation as a new idea or recombination of old ideas that to the people involved is perceived as new, even if to others it seems to be an imitation of something that exists elsewhere. Second, the innovation should entail improvement by being either more effective or more efficient relative to existing solutions (Phills et al. 2008; Chandy and Prabhu 2011). Innovation may involve sophisticated and often capital-intensive research and development (R&D) by industrial organizations as well as incremental improvements to existing technology and business models brought about by anyone, by producers or consumers.

March and Simon (1958) argued that innovations often transpire by borrowing from other innovations rather than through ab initio invention. In this sense, both social innovation and frugal innovation draw from various other forms of innovation, such as technological, economic, and institutional innovation, to offer something at least incrementally new to the user, use, application, or context. And while individually the two constructs of social and frugal innovation have gained much prominence in practice and research, our core argument is that we may theoretically link the two in order to help increase our understanding of how to better achieve inclusive markets and societies both locally and globally. In focusing on addressing Grand Challenges, Table 2 below lists several salient questions that, if taken up by scholars, could help connect social and frugal innovation in ways that make the sum greater than the parts. The table lists the substantive, conceptual and empirical issues that link frugal and social innovation through inclusion for both economic and social concerns.

Under *substantive issues*, there are three types of unanswered questions worth addressing. First, what kind of innovation -- process, product, or policy --is most powerful in bringing about outcomes that reflect inclusive societies? Although a combination of all three types of innovation will probably be needed to address different types of and levels of Grand Challenges (such as provision of clean water, universal health coverage, climate change, humanitarian relief, and economic, cultural and gender equality), it would benefit innovators and leaders to understand which type to focus on to tackle these different problems. Second, important questions remain about the distinctive nature of social and frugal innovation in for-profit versus non-profit organizations, in entrepreneurial versus large firms, in social versus commercial enterprises, and in developing versus developed markets. Finally, questions remain about which of these forms, types or regions are promoting inclusive and sustainable growth and how can innovations be diffused from one to the other?

Under *conceptual or theoretical issues*, there is potential to draw upon mainstream theories and models to hypothesize the link between frugal and social innovation and other related concepts such as inclusion and sustainability. Conceptual frameworks that draw upon organizational behavior, strategy and political economy, can then be used to assess the similarities and differences between frugal and social innovation. These analytical insights may be further used to evaluate and re-conceptualize innovation activity, such as the new product development process and how it may better take into account system-wide use of scarce resources. With the expectation that frugal and social innovations will benefit the triple bottom line – people, planet and profits -- what types of intellectual property regimes can make frugal and social innovations attractive for investment as well as for scalability and sustainability?

Under *empirical or methodological issues*, many of the substantive and conceptual questions need to be assessed by gathering evidence using a range of qualitative, quantitative, cross-sectional, longitudinal, and novel approaches such as natural experiments and real-time use of big data. The world is going through dynamic changes that reflect complex systems, and a broad mix of methodological approaches and methods would be needed to provide glimpses into both the positive and negative effects of evolving forms of innovation and hybrid organizations. All these issues can shed light on how frugal and social innovation together may improve economic and social inclusion as well as organizational, societal, and environmental sustainability. We invite scholars to take up these questions if the promise of frugal and social innovation is to be realized to their full potential for inclusivity and sustainability. We support this invitation by presenting a conceptual framework to help us

consider the power of frugal and social innovation together in better tackling the issues that underpin Grand Challenges.

<INSERT TABLE 2 ABOUT HERE>

Table 2: List of Sample Research Questions

Substantive issues	Conceptual/theoretical issues	Empirical/Methodological issues
<p>What kind of innovation in terms of process, product or policy can have most impact on inclusive outcomes?</p> <p>Which types of frugal and social innovations may enhance the competitiveness of for-profit and non-profit organizations and their sustainability?</p> <p>What constitutes social innovation as distinct from changing social behaviours and practices?</p> <p>How can a frugal innovation approach be a business opportunity in European and non-European markets for greater social inclusion?</p> <p>How can we assess the potential for ‘reverse innovation’ from developing to developed countries?</p> <p>Who, entrepreneurs or large firms, might be best suited to instituting frugal innovations, capturing value from them, and who benefits?</p> <p>What strategies do innovators practice in pursuing frugal innovation for social purposes?</p> <p>What are the obstacles and risks to unlocking the creative and business potential for frugal innovators in achieving inclusivity? (e.g., technical, legal or regulatory, geographic, financial, cultural or others).</p>	<p>Which theories and models help us to relate frugal and social innovation to each other and other related concepts such as inclusion?</p> <p>How can we connect concepts and theories drawn from the management of technology and strategy with social and frugal innovation, and vice versa?</p> <p>How can we define frugal and social innovation in such a way that helps to link them to each other?</p> <p>What are ways in which frugal and social innovations are similar and different from each other?</p> <p>How does a static and dynamic, process view of the relevant relationships compare?</p> <p>How can the new product development process be reconceptualized in light of the need for social impact and scalability?</p> <p>What is the role of experimentation and variations in contexts, processes and outcomes of these types of innovation?</p> <p>What are the challenges and opportunities posed by managing the design and production of new products and services for sustainability?</p> <p>How do various actors focus on new forms and types of frugal and social mindsets, processes, outcomes, or impact in diverse geographical and institutional contexts?</p>	<p>What can a grounded, theory-building research tell us about how entrepreneurs and for-profit and non-profit firms overcome resource constraints and institutional voids to develop highly affordable solutions for large numbers of citizens across geographical and sectoral contexts?</p> <p>What can ethnographic approaches tell us about actors around the world and the strategies they employ over time to achieve their social objectives while remaining financially viable?</p> <p>What can quantitative research tell us about which innovations for underserved consumers are created and what is the impact of these markets on social and economic inclusion around the world?</p> <p>What natural experiments can help us to understand how regulatory or technological shocks impact social and frugal innovation and inclusion?</p> <p>How can we conduct longitudinal field experiments that examine how such innovations impact social and economic inclusion?</p> <p>Can we combine qualitative and quantitative techniques in understanding how institutions and human agents (managers, entrepreneurs and policy makers) interact in developing social and frugal innovations to promote social inclusion?</p> <p>How can techniques from</p>

<p>Which policy area(s) and at which level can help address and support use of frugal and social innovation together?</p> <p>What are the similarities and differences between how social and frugal innovation are practised in emerging markets versus developed markets?</p> <p>What is the role of entrepreneurs relative to large firms, governments and NGOs as a source for propagating and practising social and frugal innovation?</p>	<p>What is the role of institutions in helping or hindering the cause of social and frugal innovation in achieving social inclusion?</p> <p>What is the role of resource constraints and the use of bricolage and other processes to overcome resource scarcity?</p> <p>What forms of intellectual property can promote the scalability and sustainability of frugal and social innovations that in the end benefit the triple bottom line?</p>	<p>computer science such as natural language processing and big data be combined to understand how social and frugal innovation is done at scale and how they bring about institutional change and social inclusion?</p> <p>How do hybrid organizations that seek to balance social and financial goals operate and how should they be regulated?</p> <p>To what extent can frugal and social innovations be relied upon to help remove economic and social inequalities?</p>
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2.1 Role of social innovation in inclusion

Social innovations are seen as solutions to ‘wicked problems’ such as endemic poverty, rising healthcare costs, lack of affordable quality education, catastrophic disasters, neglected elderly, and environmental degradation -- complex issues that involve several different constituents, many of which have conflicting or competing objectives (Bates 2011; Bocken et al. 2016; Karamchandani et al. 2009; Prabhu 2017). Mulgan et al. (2007, p. 8) refer to social innovation as "new ideas that work in meeting social goals". They make a distinction between the social needs of society as a whole versus those of the individual based on "merely personal needs or demands". The real potential of innovation is in fact in its social dimension (cf. Roth 2009; Pot and Vaas 2008).

Although innovation studies are dominated by a focus on technical innovation (Roth 2009), there is evidence that the notion of social innovation is present in the early works of economists such as Joseph Schumpeter and Nikolai Kondratiev (Kesselring 2009). Schumpeter, for instance, distinguished between product, process, procedural and organizational innovations to tap into new markets. However, in order to assure the economic

efficacy of technical innovations, Schumpeter emphasised the importance of social innovation in the economic arena as well as in culture, politics and a society's way of life (Howaldt and Schwarz 2010). In fact, the trajectory of technological innovation, economic performance and consequently social change predates Schumpeter in the works of classical sociologists like Karl Marx and political economists like Adam Smith. Around the same time as Schumpeter, the sociologist Ogburn (1937) was one of the first to distinguish technology and social innovation, but he still assumed the primacy of technology as a precursor and driver of social change (Howaldt and Schwarz 2010).

For most of the second half of the 20th century, however, the focus of innovation studies has almost exclusively been on technology innovation. Indeed, since Schumpeter, attention to social innovation in the literature is rare and marginal (cf. Moulaert et al. 2005). Specifically, in contrast to the dominant focus on business and technology innovation, there has been little systematic analysis of the design and diffusion of and support for social innovation (Foundation 2012). Only in the last two decades has social innovation gradually enjoyed a surge in interest. Desa's dissertation (2009) was one of few and substantive works that helped to bridge the dominant focus on technology and the secondary focus on social innovation by exclusively studying technology ventures engaged in social innovation. Desa's subsequent work (2011) provides insights into how technology is used directly to address social problems in an economically sustainable manner. Even so, social innovation is presented as a secondary phenomenon which ensues as social change resulting from technological and economic innovation, a view still dominant today (Roth 2009). For instance, Moulaert et al. (2005) comment that in the field of urban planning an overly technological focus paved the way for greater support for social innovation to theorize human development, empowerment and local development strategies (cf. Foundation 2012; Gerometta et al. 2005).

When we look beyond a technological focus, we begin to see social innovation as embodying a variety of actors and missions. Murray et al. (2010) stress not only new ideas including products, services and models, but also the creation of new social relationships or collaborations in the process of meeting social needs. A report on social innovation by The Young Foundation, commissioned by the European Commission (2009), finds that social innovation cuts across different private, public and civil sector actors even though most literature on social innovation tends to study it within a specific sector. Indeed, the literature shows that social innovation takes place in all three sectors, and often at the intersections of these sectors. More specifically, social ventures are deemed to operate at the nexus of economic, public, and community sectors (Dees 1996; 1998; Mair and Marti 2006) or at the intersection of multiple institutions such as the market, government, and the community (Desa 2009a; Shaw and Carter 2004). Research has examined the role of governance, empowerment, and capacity building in driving the dynamics of the relationships between different actors and the skills, competencies, assets and social capital that they bring to the table (Foundation 2012). The organizations engaged in social innovation are often able to span the intersection of various sectors – thereby becoming ‘hybrid’ organizations and potentially making it possible to be more inclusive (see Bocken et al. 2016). One type of this ‘hybrid’ organization is the social enterprise.

Perrini and Vurro (2006) argue that the nature of social innovation is multidimensional and operates throughout the social entrepreneurial process. However, much like social entrepreneurship, the notion of social innovation has been developed without clear definitions, boundaries and meaning (Foundation 2012). In fact, social innovation has received much less attention than social entrepreneurship has; the latter has benefitted from

greater traction with relatively well defined definitions and analyses (cf. Nicholls and Murdock 2012; Mair and Marti 2009). Moreover, the Young Foundation (2012) contends that social innovation is far broader than social entrepreneurship, and that it poses both opportunities and challenges for knowledge discovery and use. According to a review of the literature in the same report, Hamalainen and Heiskala (2007) identify five types of innovation: technological, economic, regulative, normative and cultural; taken together, these form the sphere of social innovations.

In contrast to the phenomenon of social innovation sometimes presented in the current literature, Bhatti's (2014) extensive study of social entrepreneurs finds that frugal and social innovators adopt a mix of technology, social, and institutional innovations to overcome resource and affordability constraints and institutional voids (see also Bhatti et al. 2018). The findings further support Perrini and Vurro's (2006) claim that innovation among social entrepreneurs is viewed as a disparate range of concepts that stem from varied motivations, means and outcomes. These motivations and means draw from social concerns but also user, efficiency, and challenge concerns for solving big and bold problems -- the latter being particularly of interest to this chapter and book.

Social innovation is increasingly seen as spanning different actors and different types of innovation. Public discourse is also increasingly focused on social and economic problems prompting a call for more extensive social innovation (Howaldt and Schwarz 2010). Despite this growth in attention to social innovation, the concept remains elusive with regard to terminology, concept and content (Howaldt and Schwarz 2010). Consequently, "the field of social innovation remains relatively undeveloped" (Mulgan et al. 2007, p.3). *The Guardian* newspaper observes that "Social innovation is the new global obsession. It might be a

nebulous idea but it has huge potential...The language around social innovation easily slides into smoke and mirrors" (Roberts 2008).

2.2 Role of frugal innovation in inclusion

As business leaders wrestle with the problem of how to improve competitiveness while simultaneously reducing costs and improving quality, the idea of adopting 'frugal innovations' as a way of tackling these challenges is gaining in prominence (Woolridge 2010; Bhatti 2014; Radjou and Prabhu 2015; Prabhu 2017; Bhatti et al. 2018 and many others). Many of these innovations have originated in low and middle-income countries where, in the absence of funding and basic infrastructure, multinationals, entrepreneurs and civil society are compelled to improvise and innovate to solve local problems (Bhatti and Ventresca 2013; Prabhu and Jain 2015). And especially since the UN General Assembly's promotion of the Sustainable Development Goals (SDGs), a geographically dispersed and interdisciplinary mix of researchers and practitioners is looking at worldwide innovation strategies to solve some of the world's most pressing issues on water, sanitation, energy, housing, transportation, education and healthcare (Prabhu 2017).

Frugal innovation has been touted in many diverse sectors such as: transportation, with the \$2500 TATA Nano car (Radjou et al. 2012); housing, with the \$300 house (Bhatti 2014); affordable solar energy and lighting (Koh and Prabhu 2015; Miller 2009); and telecommunications, with mobile banking (Radjou et al. 2012; Bhatti 2014). Some of the most iconic examples stem from healthcare, such as GE's MAC 400, a \$800 portable ECG machine (Immelt, Govindarajan, and Trimble 2009), Narayana Hrudayalaya's \$1500 cardiac surgery, and Aravind's \$30 cataract surgery (Rangan 2009; Chaudhary and Reddy 2012). The MAC 400 as a product has been reverse innovated from India to the US and Narayana and

Aravind as processes are also being reverse innovated elsewhere such as in a joint venture between Narayana and Ascension Health in the Cayman Islands (Bhatti et al. 2017a).

Escalating demand and constrained resources, as reflected in the Grand Challenges of our time and outlined in the SDGs, are paving the way for affordable and quality solutions for the socially and economically disenfranchised, but also at more sustainable levels for the socially and economically well-off. By solving the needs for both poor and rich, frugal innovation, much like social innovation, is helping to close the inequality gap towards greater inclusion (Bhatti 2014; Bhatti et al 2018).

Examples abound of why frugal innovation is crucial to social innovation including inclusivity. Take the case of mobile phone banking in emerging markets. M-Pesa in Kenya, Telenor EasyPaisa in Pakistan and EKO in India have all employed frugal innovation techniques to innovate at the frontier of technology and institutions (Bhatti 2014; Bhatti et al 2018). They all help connect the large, underserved segment of poor “unbanked” consumers to existing financial institutions and formal markets by leveraging the ubiquity of mobile technology. Even in the West, new businesses like Airbnb, BlaBla Car, eBay and E-Trade have used asset-light internet business models to enable people to trade with each other or in markets they were otherwise excluded from (Radjou and Prabhu 2015). Some of these businesses, like Airbnb and eBay began as grassroots solutions to personal problems faced by the founders but scaled because those problems were shared across the world.

Sustainably solving shared problems and providing basic services to all citizens around the world is challenging and ambitious (Sachs 2006; Stiglitz 2007; Munk 2013). Global financial liquidity is low, public spending budgets have been slashed, state debt is at peak levels, natural resources are scarce, and consumers are spending less. The 2013 US census found

that 45 million (15%) Americans live in poverty and almost 50 million (16%) do not have health insurance (US Census 2014). This puts "scarcity on the agenda for Western companies, forcing them to find frugal ways to grow with less." (Radjou et al. 2012, p. 14). Firms adopt frugality at times of reduced recessionary revenues or competitiveness induced by squeezed profits. Governments across Europe and North American too have been emphasizing frugal innovation in the public sector as a way to cope with reduced public spending and increased focus on transparency and performance (Singh et al. 2012).

As the means to do more with less for more (Prahalad and Mashelkar 2010; Bhatti 2014, Prabhu 2017), frugal innovations entail inputs and outputs that are more affordable and do so in order to have impact at global scale. But this impact does not have to be detrimental to the planet and people. Indeed, sustainability is also an important element of frugal innovations (Levänen et al. 2016, Prabhu 2017). Frugal thinking encourages the redesign of products into those that can be built with limited resources, and have maximum use with fewer inputs, leaving a minimal carbon footprint on the environment (Radjou and Prabhu 2015). Existing business models that reflect the over-consumptive nature of existing top-of-the-pyramid strategies (Hart 1997) could not conceivably fulfil the needs of 4-5 billion at the bottom without increasing the rate of depletion of limited global resources (Hammond et al. 2007).

Frugally innovative services partly stem from doing good, but also from meeting unmet gaps in the market (Economist 2012). To reach the 'the next three billion', as Ernst and Young (2011; see also Hammond et al. 2007) dubs this opportunity, it is necessary for companies to think differently about every stage in the new product development process so as to create entirely new products and services to fulfil the unmet needs of the three billion people worldwide who live at the bottom of the pyramid. In a survey of over 547 executives from

around the world, Ernst and Young (2011) found that more than 75% thought that adopting frugal innovation to create products and services was a major opportunity while 81% of agreed that frugal innovation is a concept that has as much relevance to developed as it does to rapidly growing emerging markets. Finally, more than one-third of executives surveyed said they were already benefiting from a more frugal approach to innovation, while a further 40% planned to do so.

For instance, GE is trying to disrupt itself by departing from a glocalization strategy to one of reverse innovation which employs frugal innovation first in emerging markets and then in the West (Immelt, Govindarajan, and Trimble 2009; Christensen 2013). By shifting from a strategy where products come first and countries come second, GE is trying to create new markets first in emerging countries and then import them into developed countries for new applications or new segments (Immelt et al. 2009).

2.3 Linking social and frugal innovation through inclusion

Social and frugal innovations have independently attracted the attention of practitioners, policymakers and academics for their potential to separately offer inclusive solutions for people around the world. We believe, however, that taken together these two types of innovation offer synergies that can produce a greater impact on the intended beneficiaries. Their joint effect also has implications for cooperation between different types of actors in the real world as well as among scholars who study innovation through various lenses. Specifically, we argue that social and frugal innovation can jointly be conceptualized as complementary approaches to improve local and global inclusion. In other words, inclusion can act as a bridge that links frugal innovation by mainstream commercial entrepreneurs and firms to social innovation by social entrepreneurs and enterprises. But linking the two types

of innovation also showcases the challenges that social and commercial entrepreneurs face in trying to achieve inclusion: namely, merging two ostensibly contradictory organizational goals, i.e., social value creation and profit generation. It can be tough to simultaneously achieve both these objectives, particularly in environments where even basic institutional infrastructure may not exist (Miller et al. 2012, Bhatti 2014; Prabhu et al. 2017).

3. Theoretical framework

Taken together, social and frugal innovation could offer new theoretical and practical insights into improving inclusion by solving social issues. Social issues refer to concerns such as poverty, illiteracy, and unemployment which are "putative conditions or situations that are labelled a problem in the arenas of public discourse and action" (Hilgartner and Bosk 1988: 53–54). When social issues are resolved in a way that "achieves an equivalent social benefit with fewer dollars or creates greater social benefit for comparable cost" (Porter and Kramer 1999: 126), this process can be called social value creation (Miller et al. 2012). Although the proceeds of social benefit go mainly to society, as opposed to an individual or specific organization (Thompson 2002), we also must acknowledge the need for financial surplus that stems from market based activities to help make solutions sustainable. We are interested here in entrepreneurs and innovators who embrace inclusion to create both economic and social value by addressing the unmet needs of under-served populations. These may in turn be social entrepreneurs who look to serve underserved users whose needs are not sufficiently addressed (McMullen 2011) or commercial entrepreneurs who adopt a ‘shared value’ approach in their business models (Porter and Kramer 2011).

Social entrepreneurship and social innovation have often been intertwined to the extent that it can be hard to distinguish the two. Tracey and Jarvis (2007) claim that social

entrepreneurship is often defined as innovation that leads to positive social change. This is perhaps due to the fact that the notion of trading for a social purpose is at the core of social entrepreneurship (Travis and Jarvis 2007). A prevalent understanding of social entrepreneurs is that their primary objective is to create social value while a secondary but necessary objective is also to create economic value and ensure financial viability (Mair and Marti 2006). The broad claim about social entrepreneurial activity is that it is market-based innovation focused on societal change (Nicholls 2006, Nicholls and Murdock 2012). Social enterprises are deemed to be a unique hybrid of organizations that exist somewhere between the ‘purely philanthropic’ at one end and the ‘purely commercial’ at the other (Dees 1998).

With a focus on commercial market activity by social entrepreneurs to create social value alongside economic value, social entrepreneurship has its roots in the study of non-profit organizations. The adoption of business practices in non-profit organizations resonates with the literature on social entrepreneur traditions (see Dart 2004 who cites examples by Emerson & Twersky 1996; Dees et al. 2001). A focus on the financial bottom-line was traditionally atypical or uncommon in the non-profit funding and service environment (Dart 2004). But a greater focus on commercial activity by non-profits has brought about more attention to market-based approaches that focus on the financial bottom-line, efficiency, reduced cost structures and market-focused social innovations (e.g. Austin 2000; Emerson and Twersky 1996; Brinckerhoff 2000; Dees et al. 2001).

Social enterprises often seek to create social value (Peredo and McLean 2006; Shaw and Carter 2007) through commercial market-based models (Hartigan 2006; Hockerts 2006; Lasprogata and Cotten 2003; Thompson 2002). Social entrepreneurs are committed to serving society (Brooks 2008; Nicholls 2006; Austin et al. 2006; Elkington and Hartigan 2008) while

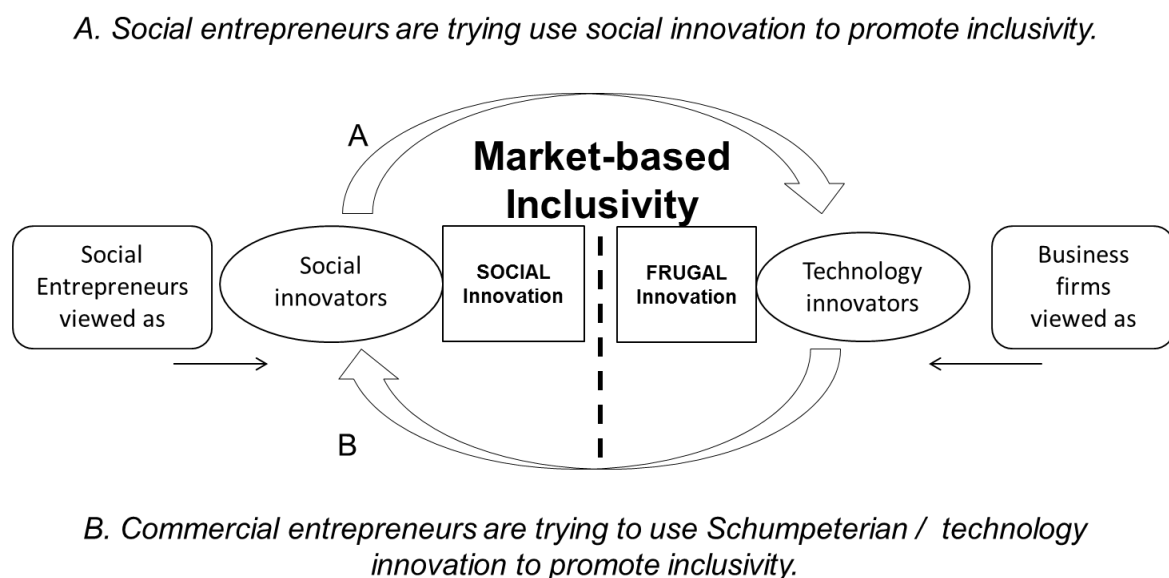
mainstream commercial entrepreneurs primarily seek to create economic value (Austin et al. 2006). Another way to look at social entrepreneurship is to understand that benefits accrue primarily to targeted beneficiaries as opposed to owners (Alvord et al. 2004; Austin et al. 2006; Mair and Marti 2006). Nevertheless, in this process of trading, social entrepreneurs have to exploit market opportunities, assemble resources, and develop products and/or services that help achieve ‘entrepreneurial profit’ (Schumpeter 1934). Unlike purely commercial entrepreneurs who have an ultimate goal of financial return, and unlike purely non-profit entrepreneurs who have an ultimate goal of social philanthropy, social entrepreneurs and indeed many socially conscious commercial entrepreneurs have the dual goals of providing both mission-related social outcomes as well as market-based outcomes (Desa 2011).

Building on this range of market activity, Bhatti (2014) connected the perspective of social entrepreneurs carrying out social and purposeful innovation with the perspective of commercial entrepreneurs or firms carrying out frugal and purposeful innovation. From a study of a large sample of social entrepreneurs, he found a common cross-cutting theme, namely, the focus on resolving the needs or aspirations of the disadvantaged, disenfranchised or marginalized segments of society, such as those the base of the pyramid. Bhatti et al (2018) find in terms of organizational boundaries, social entrepreneurs are seen as mainly social innovators and business entrepreneurs and firms are seen as mainly technological innovators. However, through a common focus on serving the underserved, whether for profit or social improvement, both types of organizations, i.e., social entrepreneurs and mainstream businesses, are adopting notions of inclusion through social and/or frugal innovation (c.f. Bhatti et al. 2013; Govindarajan and Trimble 2012; Radjou et al. 2012).

The common, market-based activities of social innovators and frugal innovators suggest that this can serve as a bridge between the two. Therefore, there is a common ground that transcends and reconciles the different motivations and approaches between these two communities. While social innovation is seen as one facet by which to achieve inclusion by social entrepreneurs, frugal innovation is the other facet by which to achieve inclusion by commercial entrepreneurs or large firms (Figure 1). Inclusion serves as a bridge to bring business into the activities of social entrepreneurs (e.g. Mohammad Yunus and Grameen) and to bring social into the activities of corporations (e.g., GE and Tata).

<INSERT FIGURE 1 ABOUT HERE>

Figure 1: Connecting social and frugal innovation through inclusion



In other words, inclusion can be thought of as a boundary object that is helping to bridge traditional practices with alternative ones through different actors. What brings them together is the common drive to overcome inequality. This may have come about as a result of market, government, or technology failure. Though civil society, social movements, academic researchers, government departments, and commercial enterprises may all have their own agendas for taking part in the market for frugal innovations (Bhatti and Ventresca 2013;

Bhatti 2014, Bhatti et al 2018a), we argue that the main goal for each -- social and frugal innovation -- is the same, i.e., to innovate in a way that promotes inclusive market participation and in a way that lessens social inequality in a sustainable way.

With increasing interest among researchers and practitioners regarding market based solutions to social issues (Miller et al 2012), we now outline some research opportunities for greater inclusion based on our theoretical model.

4. Research agenda

This chapter and our theoretical framework suggest several opportunities for future research in business in general as well as more specific sub-disciplines such as organizational theory, corporate strategy, policy, marketing, entrepreneurship and finance. We now turn to a discussion of the substantive, conceptual and methodological implications of this chapter for future research.

Substantive issues

The main claim here is that a better understanding of how to embed frugal and social innovation in products, practices and attitudes within organizations can expedite the development of high-impact and cost-effective solutions that address the global challenges of burgeoning budgets, financial accountability, growing inequality and finite resources. But to do so, a great deal more theoretical and empirical research is needed on both social and frugal innovation as innovation approaches in their own right (Kesselring 2009).

Future research must distinguish the *what, how and why* of frugal innovation along the lines of Fagerberg, Mowery and Nelson's (2005) categorization of 'how innovation differs', 'the

systemic nature of innovation’, ‘innovation in the making’ and ‘innovation and performance’. Doing so would result in an improved understanding of how frugal innovation can be understood in terms of process, product or policy. Once these fundamental questions are addressed, scholars may be able to identify which types of frugal innovations can enhance the competitiveness of for-profit and non-profit organizations and their sustainability.

Similarly, the concept of social innovation has yet to become properly established in the academic literature in business (Aderhold 2005). For instance, Kesselring’s study of social innovation attempts to distinguish social innovation from social change by arguing that social change may ensue following concerted efforts to innovate. However, on this view, anything that constitutes social change may equally be labelled social innovation. Future research needs to be able delineate what constitutes social innovation as distinct from changing social behaviours and practices.

An improved understanding of social and frugal innovation individually and together can help policy makers who are interested in using and managing advanced social indicators of innovation (Moris et al. 2008) and developing new policy (Soete 2007). The EU, for instance, is looking at advancing its innovation agenda through the lens of both social and frugal innovation with a particular focus on sustainability, the circular economy, energy efficiency and job creation among its member countries (EC 2017, Von Jacobi et al 2017). (For further information, please see EC sponsored projects ‘Frugal Innovation and the Re-Engineering of Traditional Techniques’ and ‘Creating Economic Space for Social Innovation’ projects.) Keeping in mind the financial crisis and its aftermath, policy makers in the EU are seeking to promote competitiveness for more sustainable growth, stimulate employment, reduce poverty and improve social inclusion. To this end, the EU has sought to make recommendations to

European companies and research centres on how a frugal innovation approach can be a business opportunity in European and non-European markets. This line of inquiry can help to determine how such business opportunities could be conducive for greater social inclusion.

Leveraging frugal innovation for social inclusion, however, poses many challenges. Particularly in affluent societies, but also ironically among lower income groups in developing countries as well, there is a tendency to equate frugality with poor quality and this makes the diffusion of frugal innovations challenging. Moreover, the direction of travel for innovation has always been from developed to emerging markets and the bias therefore, in research and practice alike, is against seeking inspiration for innovative ideas from resource constrained environments and emerging markets (Harris et al. 2016; 2017ab; Bhatti et al. 2017a). Precisely for this reason, however, the study of frugal innovation in emerging markets provides a key opportunity to reassess underlying assumptions regarding innovation, such as the potential for ‘reverse innovation’ from developing to developed countries (cf. Prime et al. 2016; 2018; Bhatti et al. 2017ab) as well as who, entrepreneurs or large firms, might be best suited to instituting this strategy, protecting it, and benefiting from it.

Conceptual/theoretical issues

This chapter and our theoretical framework offer many opportunities for future research to advance our theoretical understanding of social and frugal innovation and their links to inclusion. Both concepts of social and frugal innovation have gained increasing popularity in the academic and practitioner literature. However, there is a need to integrate diverse perspectives and situate arguments conceptually and theoretically.

First, we need holistic definitions for each of these two types of innovation in such a way that help to link them to each other. At the same time, we need a better understanding of how the two are similar and different from each other. Second, we need better theories and models of how they relate to each other and other related concepts such as inclusion. Further, these theories and models should go beyond a static understanding of the links to include a dynamic, process view of the relevant relationships. For instance, it is possible that for social innovation as an overarching concept to work, it needs frugal innovation along with other types of innovation (e.g., technological innovation, bricolage, organizational innovation, business model innovation) at various points on the journey. Specifically, from a dynamic point of view, for a social innovation to be successful it might involve bricolage at the start of the journey (experimentation phase), followed by frugal innovation (scaling phase), and then eventually inclusive innovation (consolidation and expansion phase) (see Koh and Prabhu 2015; Bocken et al. 2016).

Future research in international management should focus on developing three related areas:

a) connecting concepts and theories drawn from the management of technology and innovation with social and frugal innovation, and vice versa, b) examining how the management of the new product development process must be reconceptualized in light of the need for social impact and scalability, and c) studying the role of experimentation and variations in contexts, processes and outcomes of these types of innovation. Specifically, future research can look to the challenges and opportunities posed by managing the design and production of new products and services in emerging markets. It can also study how various actors focus on new forms and types of innovation mindsets, processes, outcomes, or impact in diverse geographical and institutional contexts. Future research can also examine the role of and link between different types of innovators and entrepreneurs and how hybrid

organizations that seek to balance social and financial goals operate (see Prabhu 2017; Bocken et al. 2016). Finally, future research should also examine the role of institutions in helping or hindering the cause of social and frugal innovation in achieving social inclusion (Koh and Prabhu 2015; Prabhu et al. 2017).

In the entrepreneurship area, future research should examine the similarities and differences between how social and frugal innovation are practised in emerging markets versus developed markets. Specifically, research can examine the role of entrepreneurs relative to large firms, governments and NGOs as a source for propagating and practising social and frugal innovation. It can also seek to compare the intellectual property strategies employed by mainstream commercial entrepreneurs for technology and business model innovation with those IP strategies available to and employed by various actors in protecting, promoting and valuing social and frugal innovations. Finally, the role of resource constraints and the use of bricolage and other processes to overcome resource scarcity is a rich avenue for future research.

Empirical/Methodological issues

This chapter and the theoretical framework we develop offer several empirical and methodological implications for future research. First, the relative paucity of knowledge about social innovation, frugal innovation and the inter-relationship between these two concepts and social inclusion suggests the need for grounded, theory-building research into how entrepreneurs and for-profit and non-profit firms overcome resource constraints and institutional voids to develop highly affordable solutions for large numbers of citizens across geographical and sectoral contexts. Future research in these areas should begin with deep ethnographies of such actors around the world and the strategies they employ over time to

achieve their social objectives while remaining financially viable. Second, this chapter and our theoretical framework suggest many opportunities for quantitative research into how innovations for underserved consumers are created and the impact of these markets on social and economic inclusion around the world.

Given that NGOs, start-ups, multinationals and governments around the world are beginning to develop and implement frugal and social innovations on a large scale in fundamental areas such as energy, health, financial services and education (see Hammond et al. 2007), many opportunities exist for future research to conduct longitudinal field experiments that examine how such innovations impact social and economic inclusion (see Levitt and List 2009). Given also that many of these innovations are being developed in emerging markets where new policies and institutions are being introduced almost on a daily basis, opportunities arise to exploit such natural experiments to understand how regulatory or technological shocks impact social and frugal innovation and inclusion. Because such field or natural experiments also enable researchers to be present from the birth of a phenomenon, and compare outcomes in treatment relative to control groups in the field, such research also offers the opportunity to make strong causal inferences in real world environments (see Angrist and Krueger 2001). While such natural and field experiments are highly influential in development economics (e.g. Levitt and List 2009), hitherto such studies have been relatively rare in business.

Finally, our theoretical framework suggests opportunities for combining qualitative and quantitative techniques in understanding how institutions and human agents (managers, entrepreneurs and policy makers) interact in developing social and frugal innovations to promote social inclusion. Various aspects of institutional work, as well as social and frugal innovation, require actors to use language creatively (Maguire et al. 2004; Phillips et al. 2004; Zilber 2006; Maguire and Hardy 2009). Specifically, creating new institutions and reforming current ones requires actors to build a new system of meaning and create a shared

sense of purpose. This in turn suggests opportunities for future research to engage with techniques beyond business and management such as from computer science such as natural language processing and big data to understand how such social and frugal innovation is done at scale and how they bring about meaning and sense to institutional change and social inclusion.

5. Conclusion

In this chapter we have sought to present the power and potential of frugal innovation and social innovation to better address the issue of inclusive and sustainable growth around the world. We have outlined how these two types of innovations both independently and together seek to make the process and outcomes of innovation more economically and socially inclusive. We hope that we have laid out a path for researchers to advance theoretical and empirical studies in the area. We also hope that we have provided practitioners and policy makers the means to harness such hybrid models of innovation to resolve the most pressing Grand Challenges of our time.

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